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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/684,729	10/06/2000	Thomas R. ST.Myer	TRW(RG)4902	1573

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EXAMINER

MCANULTY, TIMOTHY P

ART UNIT	PAPER NUMBER
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3682

DATE MAILED: 12/10/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/684,729

Applicant(s)

ST.MYER, THOMAS R.

Examiner

Timothy P McNulty

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 22 September 2003.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,9,10,13-16,24 and 26-37 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 27-37 is/are allowed.
- 6) ☒ Claim(s) 1,9,10,13,15,16,24 and 26 is/are rejected.
- 7) ☒ Claim(s) 14 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ 6) ☐ Other: _____

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

2. Claims 1, 10, 13, and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Pfenninger, Jr., et al. in view of Cartwright et al.

Pfenninger, Jr., et al. discloses in figure 1, an axially extending input shaft 16; a housing 17; a bearing interposed between the housing and the input shaft; at least one series of axially spaced annular ribs 23 on said housing wherein adjacent ribs are separated by an annular groove; and a gasket 22 encircling the bearing having ribs and on an outer surface of said gasket. Pfenninger, Jr., et al. also discloses in lines 31-40 of column 3 that ribs may be provided on one or both the housing and an inner ring 18, i.e. the inner ribs may not be provided on the inner ring and only provided on the housing; thus providing a cylindrical surface on an inner surface of said gasket.

Pfenninger, Jr., et al. does not disclose said input shaft connected to a vehicle steering wheel as part of a vehicle steering column. However, Cartwright et al. teaches in figure 2 a vehicle steering column 10 including an input shaft 16 connected to a steering wheel 18 and connected via a universal joint 46 to a lower steering column member 12; and a housing 32 having a flange portion for connecting to the lower steering column member and a cavity wherein a first and second bearing 34 are located; said first and second bearing being separated by a smooth annular.

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to have the input shaft of Pfenninger, Jr. et al. connected to a steering wheel in view of the

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teachings of Cartwright et al. that it is old and well known in the art to provide axial support for an input shaft of a vehicle steering wheel with a bearing located within a housing.

3. Claims 1,9,16,24, and 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Veneble et al. in view of Pfenninger, Jr., et al.

Veneble et al. discloses in figure 1, a steering assembly comprising an input shaft 14 inherently connected to a steering wheel (not referenced) and connected via a universal joint 134 to a lower steering column member 132; and a housing having a flange portion for connecting to the lower steering column member and a cavity wherein a first and second bearing 112 are located; said first and second bearing being separated by a smooth annular surface. Veneble et al. does not disclose said first and second bearings comprising a gasket having a cylindrical inner surface and a ribbed outer surface. However, Pfenninger, Jr., et al. teaches in figure 1, an axially extending input shaft 16; a housing 17; a bearing interposed between the housing and the input shaft; at least one series of axially spaced annular ribs 23 on said housing wherein adjacent ribs are separated by an annular groove; and a gasket 22 encircling the bearing having ribs and on an outer surface of said gasket. Pfenninger, Jr., et al. also teaches in lines 31-40 of column 3 that ribs may be provided on one or both the housing and an inner ring 18, i.e. the inner ribs may not be provided on the inner ring and only provided on the housing; thus providing a cylindrical surface on an inner surface of said gasket. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the apparatus of Veneble et al. in view of the teachings of Pfenninger, Jr., et al. to include the old and well known bearing structure so taught to provide a cushion bearing mount between said housing and said input shaft.

Response to Arguments

4. Applicant's arguments with respect to claims 1,10,13, and 15 have been considered but are not persuasive. Pfenninger et al. clearly discloses in lines 31-40 of column 3, that the ribs on inner ring 18 may not be included. As such, the gasket would then not have ribs on an inner surface thereof as shown in figure 1, but would have a cylindrical inner surface to conform to the non-ribbed outer surface of inner ring 18.

5. Applicant's arguments with respect to claims 9,16,24, and 26 have been considered but are moot in view of the new ground(s) of rejection. Although Cartwright may not distinctly teach an annular surface between a first bearing and a second bearing, Veneble et al. teaches such a structure.

Allowable Subject Matter

6. Claims 27-37 are allowed.

7. Claim 14 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. The prior art discloses the basic apparatus as previously cited but does not disclose or teach the mechanical benefits of the exact claimed ranges of the dimensional limitations of each rib; specifically each rib having: a width within the range of 0.068 inches to 0.078 inches, a height in the range of 0.025 inches to 0.035 inches, a flat peak having an axial length in the range of 0.012 inches to 0.022 inches, and side surfaces extending from a bottom surface at an angle of approximately 57 degrees and a flat valley between each rib having: an axial length in the range of 0.012 inches to 0.022 inches.

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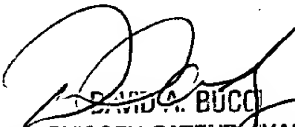
Conclusion

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Timothy P McAnulty whose telephone number is 703.308.8684. The examiner can normally be reached on Monday-Friday (7:30-5:00).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Bucci can be reached on 703.308.3668. The fax phone number for the organization where this application or proceeding is assigned is 703.872.9326.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703.308.1113.

tpm 
December 2, 2003

 12/3/03
DAVID A. BUCCI
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 3600